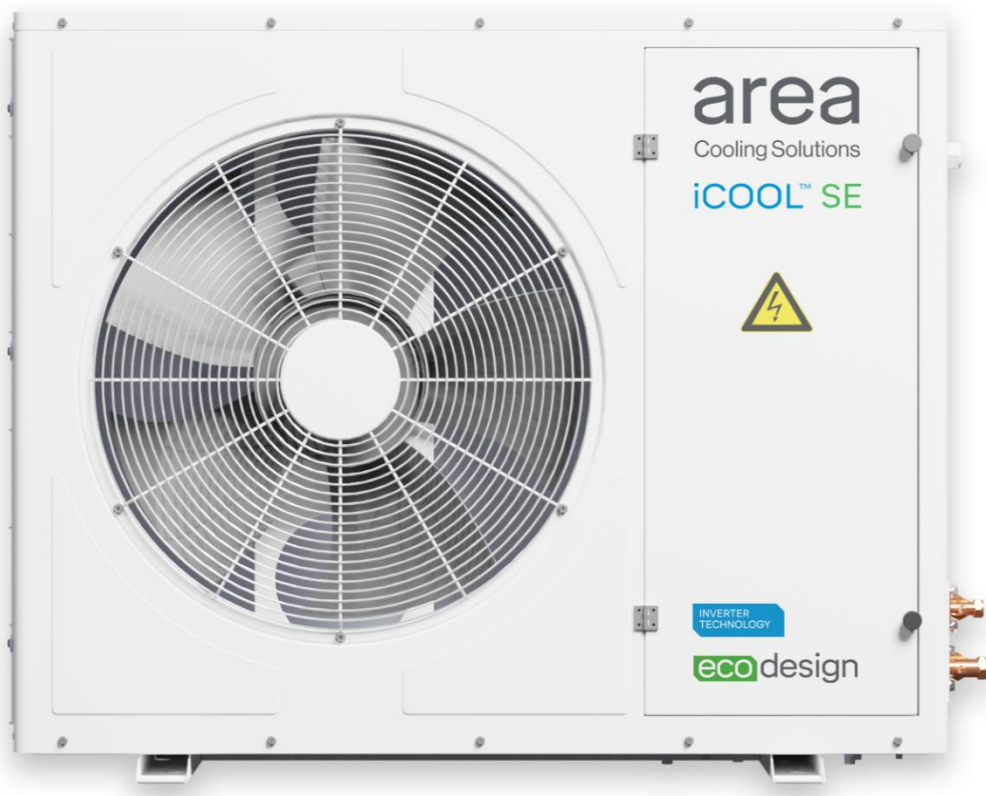


iCOOL SE series Condensing Units

Technical Brochure








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2. General Information

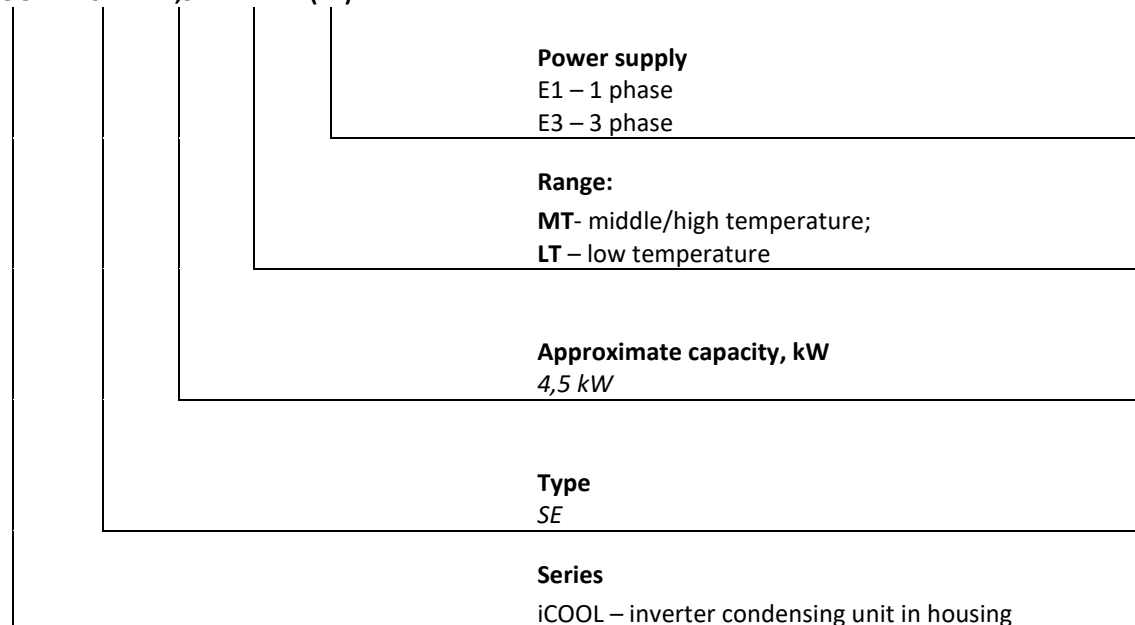
- Refrigeration iCOOL series SE condensing units are designed for automatic operation in refrigerated storage rooms, refrigeration cabinets, liquid coolers and other equipment the operating parameters of which meet the requirements of unit's characteristics.
- Condensing units are designed to be used with HFC refrigerants. Refrigerants allowed for specific units are listed in table below. Filling or refilling these units with any other refrigerant type can cause damage. The units must not operate in conditions exceeding their working parameters. Doing otherwise can cause damage to the unit and will void the warranty.

Table of permitted refrigerants:

	iCOOL SE 2,5 MT (E1)	iCOOL SE 4,5 MT (E1)	iCOOL SE 6,5 MT (E1)	iCOOL SE 9,5 MT (E3)
	✓	✓	✓	✓
	✓	✓	✓	✓
	✓	✓	✓	✓
	✓	✓	✓	✓
	✓	✓	✓	✓

3. Type code description

iCOOL SE 4,5 MT (E1)



4. Units specification

4.1. Components

- High efficient BLDC rotary compressor (Avic) with crankcase heater
- Air-cooled condenser
- EC fans
- Shut-off valve on suction line
- Insulation on suction pipeline
- Liquid receiver with shut-off valve on the outlet
- Safety valve
- Liquid line: filter drier, sight glass with moisture indicator, shut-off valve
- Service valves
- HP pressure switch with auto reset – compressor protection
- Inverter – control of compressor's performance
- Eliwell interface
- Suction and discharge pressure sensor
- Fully equipped electrical board
- Condenser protective grid



5. Technical data

Condensing unit model				iCOOL SE 2,5 MT (E1)	iCOOL SE 4,5 MT (E1)	iCOOL SE 6,5 MT (E1)	iCOOL SE 9,5 MT (E3)
Dimensions	Length	A	[mm]	1000	1000	1100	TBD
	Height	B	[mm]	605	605	805	TBD
	Width	C	[mm]	450	450	450	TBD
Gross weight			[kg]	70	70	80	TBD
Condenser	Fans x diameter		[mm]	1x450	1x450	1x500	TBD
	Air flow		[m ³ /h]	3600	3600	5200	TBD
	Fan power supply		[V/ph/Hz]	220-240/1/50	220-240/1/50	220-240/1/50	TBD
	Fan power consumption		[W]	170	170	230	TBD
	Amperage		[A]	1,4	1,4	2,1	TBD
Compressor	Model			C-6RVN63LOB	C-7RVN113LOB	C-7RVN153LOB	-
	Volumetric flow		[m ³ /h]	0,6-4,1	1,25-7,5	1,7-10,4	2,3-13,6
	Speed		[RPS]	30-90	30-90	30-90	30-90
	Frequency		[Hz]	Inv. /60-180	Inv. /60-180	Inv. /60-180	Inv. /60-180
	Current	MCC	[A]	8	14	18	TBD
		LRA	[A]	-	-	-	-
	Oil type			FV68S	FV68S	FV68S	FV68S
	Compressor oil fill		[dm ³]	0,6	0,7	0,7	1,35
Crankcase heater		[W]	35	35	35	35	
Sound level @10 m			[dBa]	42,5	42,5	42,5	TBD
Connections	Suction line		[in]	1/2	5/8	3/4	7/8
	Liquid line		[in]	3/8	3/8	3/8	1/2
Liquid receiver			[dm ³]	3,9	3,9	5,3	TBD
Power supply	Voltage		[V/ph/Hz]	220-240/1/50	220-240/1/50	220-240/1/50	TBD
	Recommended minimum power cable cross-section			3x2,5mm ²	3x2,5mm ²	3x4,0mm ²	TBD
	Recommended minimum circuit breaker			C10	C16	C20	TBD

6. Capacity tables

6.1. Refrigerants R448A/R449A

R448A/R449A		Capacity (subcooling: 3 K, superheat: 10 K)								
Model	Range	Te, °C	-15		-10		-5		0	
		Ta, °C	Q, W	Pe, W	Q, W	Pe, W	Q, W	Pe, W	Q, W	Pe, W
iCOOL SE 2,5 MT (E1)	MIN	27	732	489	875	498	1 035	506	1 211	513
		32	681	514	820	524	974	534	1 144	544
		38	629	547	760	560	906	572	1 066	585
		43	587	577	711	592	848	607	999	622
	MAX	27	2299	1 208	2726	1 268	3186	1 333	3671	1 405
		32	2156	1 288	2558	1 354	2990	1 425	3441	1 502
		38	1977	1 392	2344	1 463	2734	1 539	3116	1 600
		43	1812	1 483	2056	1 466	2136	1 328	2254	1 250
iCOOL SE 4,5 MT (E1)	MIN	27	1 443	736	1 724	751	2 037	767	2 381	782
		32	1 343	777	1 615	797	1 918	816	2 249	836
		38	1 241	835	1 498	859	1 783	883	2 096	908
		43	1 158	889	1 400	916	1 669	943	1 962	971
	MAX	27	4182	2 203	4945	2 331	5758	2 471	6605	2 625
		32	3915	2 360	4629	2 497	5383	2 647	6164	2 808
		38	3573	2 560	4216	2 706	4777	2 752	4958	2 474
		43	3069	2 498	3070	2 084	3289	1 914	3750	1963
iCOOL SE 6,5 MT (E1)	MIN	27	2 077	960	2 480	979	2 931	997	3 428	1 015
		32	1 931	1 015	2 322	1 039	2 758	1 063	3 237	1 086
		38	1 782	1 090	2 153	1 120	2 566	1 149	3 018	1 179
		43	1 665	1 159	2 015	1 193	2 404	1 227	2 830	1 262
	MAX	27	6004	2 766	7125	2 906	8188	2 981	9372	3 100
		32	5632	2 961	6572	3 039	7558	3 118	8652	3 240
		38	5033	3 100	5875	3 177	6819	3 297	7734	3 374
		43	4548	3 234	5309	3 308	5923	3 240	6267	2 999

T_e – evaporating temperature, °C

T_a – ambient temperature, °C

(*)

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6.2. Refrigerant R513A

R513A		Capacity (subcooling: 3 K, superheat: 10 K)										
Model	Range	Te, °C	-15		-10		-5		0		5	
		Ta, °C	Q, W	Pe, W	Q, W	Pe, W	Q, W	Pe, W	Q, W	Pe, W	Q, W	Pe, W
iCOOL SE 2,5 MT (E1)	MIN	27	380	381	485	389	605	398	738	406	885	415
		32	354	387	452	396	563	405	690	415	830	425
		38	323	400	412	410	515	421	632	432	765	444
		43	298	415	379	426	475	439	586	451	712	464
	MAX	27	1 267	783	1 593	814	1 956	848	2 354	886	2 788	930
		32	1 179	812	1 480	847	1 820	887	2 197	931	2 611	981
		38	1 073	858	1 346	900	1 660	946	2 013	997	2 404	1 055
		43	987	905	1 239	952	1 532	1 004	1 865	1 062	2 236	1 128
iCOOL SE 4,5 MT (E1)	MIN	27	714	554	913	569	1 137	584	1 388	600	1 664	617
		32	668	567	851	583	1 061	600	1 298	618	1 562	636
		38	610	591	776	610	970	629	1 191	649	1 440	671
		43	562	618	715	639	896	661	1 104	684	1 340	709
	MAX	27	2 351	1 293	2 952	1 351	3 621	1 415	4 356	1 487	5 155	1 569
		32	2 188	1 347	2 742	1 413	3 369	1 487	4 065	1 570	4 828	1 665
		38	1 990	1 433	2 495	1 510	3 073	1 596	3 724	1 693	4 444	1 803
		43	1 832	1 519	2 296	1 606	2 837	1 703	3 450	1 813	4 134	1 936
iCOOL SE 6,5 MT (E1)	MIN	27	1 034	713	1 324	732	1 651	751	2 015	770	2 415	789
		32	944	731	1 204	752	1 503	773	1 840	794	2 214	817
		38	862	761	1 099	785	1 374	809	1 689	834	2 042	860
		43	795	795	1 012	821	1 269	848	1 566	877	1 901	907
	MAX	27	3 310	1 674	4 168	1 745	5 126	1 823	6 181	1 908	7 330	2 005
		32	3 084	1 740	3 877	1 821	4 774	1 910	5 773	2 009	6 869	2 120
		38	2 809	1 848	3 529	1 942	4 358	2 046	5 292	2 161	6 327	2 291
		43	2 586	1 957	3 250	2 063	4 024	2 180	4 905	2 311	5 889	2 458

T_e – evaporating temperature, °C

T_a – ambient temperature, °C

(*)

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7. iCOOL SE series SEPR/COP

		A	B	C	D	E	SEPR [-]	P [kWh/year]
	Ambient temperature	32°C	25°C	15°C	5°C	43°C		
iCOOL 6.5 SE R448A	Q [W]	6652	5962	4977	3991	5309	3,80	10749
	P [W]	3111	2199	1354	834	3308		
	COP [-]	2,14	2,71	3,67	4,79	1,60		
iCOOL 4.5 SE R448A	Q [W]	4666	4182	-	-	3071	-	-
	P [W]	2462	1722			2085		
	COP [-]	1,89	2,43			1,47		
iCOOL 2.5 SE R448A	Q [W]	2543	2279	-	-	2022	-	-
	P [W]	1352	996			1430		
	COP [-]	1,88	2,29			1,41		
iCOOL 6.5 SE R513A	Q [W]	3910	3505	-	-	3309	-	-
	P [W]	1822	1415			2065		
	COP [-]	2,15	2,48			1,60		
iCOOL 4.5 SE R513A	Q [W]	2768	2481	-	-	2340	-	-
	P [W]	1414	1098			1522		
	COP [-]	1,96	2,26			1,54		
iCOOL 2.5 SE R513A	Q [W]	1493	1339	-	-	1262	-	-
	P [W]	848	716			953		
	COP [-]	1,76	1,87			1,32		

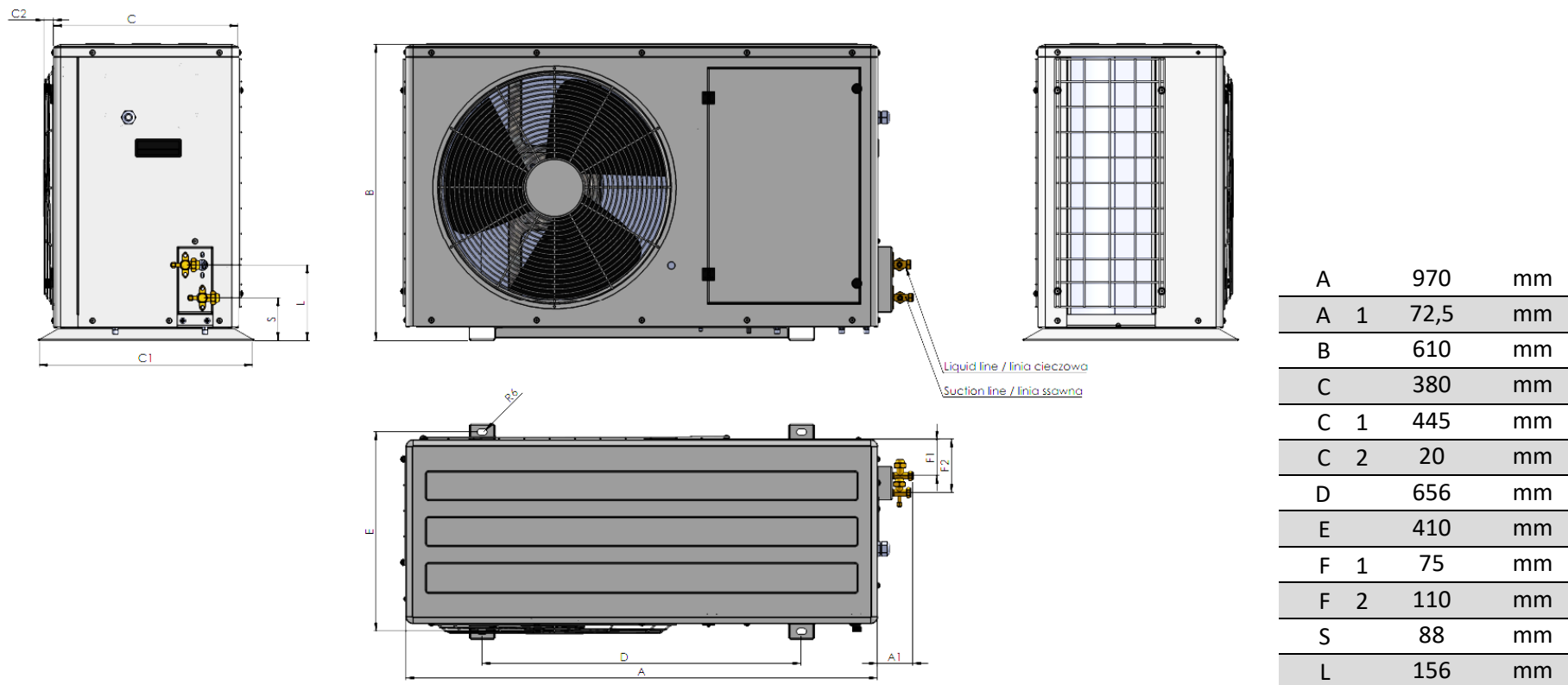
8. Limit of installation

Condensing unit iCOOL SE is intended to be used in installation which followed criteria are fulfilled:

- Piping equivalent length lower than 15m for liquid line and suction line
- Vertical difference maximum 5m
- Suction line with properly made oil traps and risers
- Maximum 3 separate evaporators
- Cooling capacity of smallest evaporator should be larger than 30% of condensing unit maximum capacity at given evaporation temperature

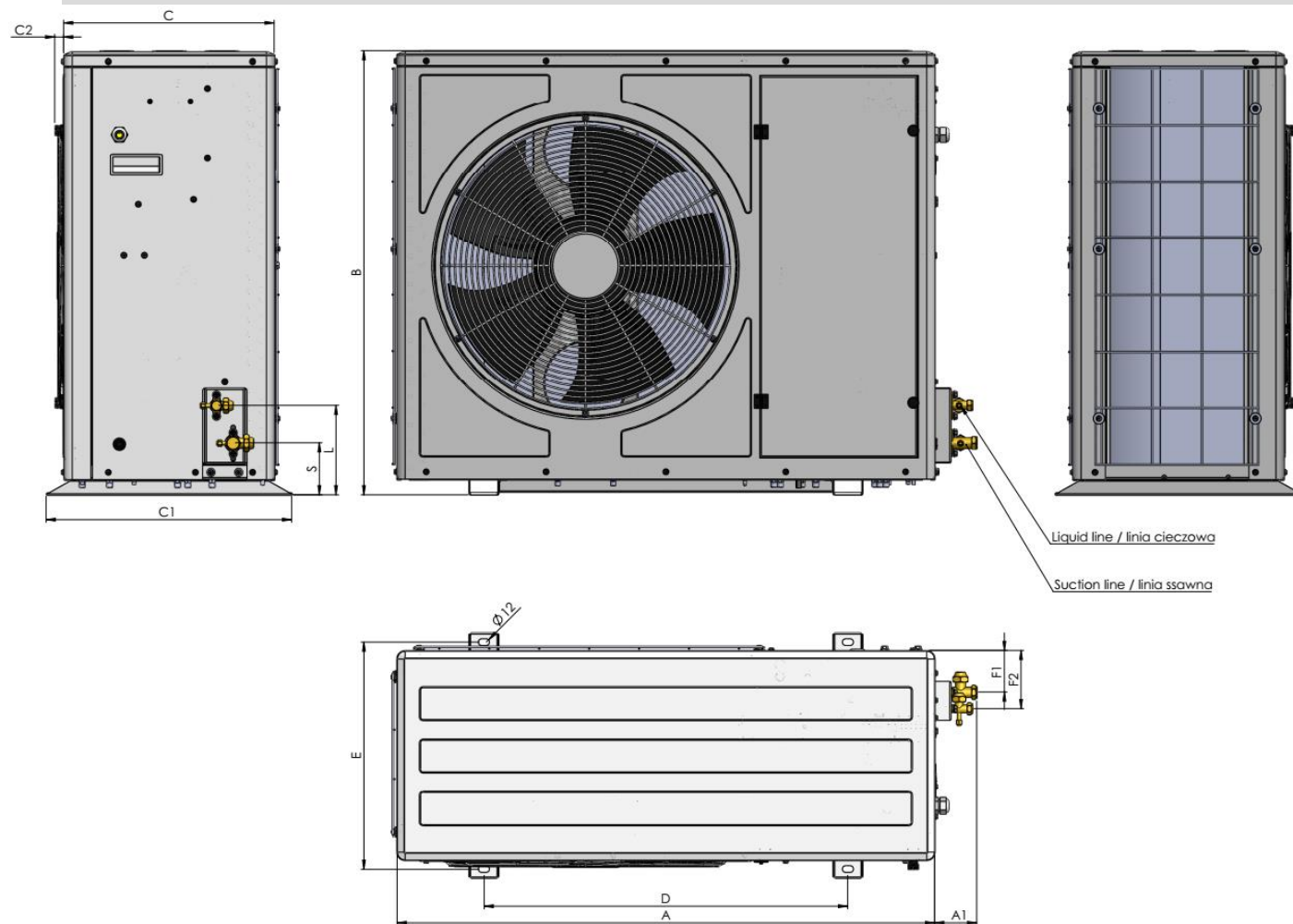
9. Units drawings

9.1. iCOOL SE 2.5/4.5 MT (E1)



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9.2. iCOOL 6.5 SE



Liquid line / linia cieczowa

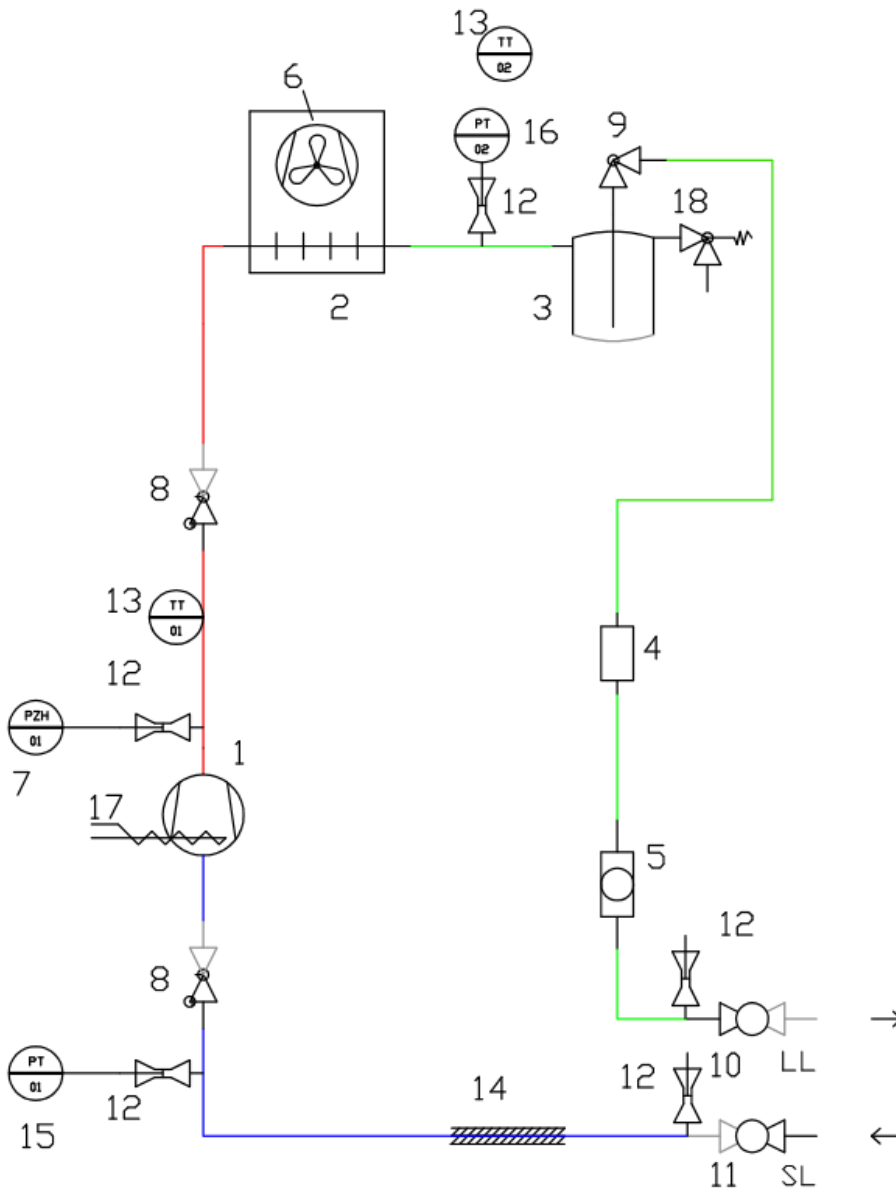
Suction line / linia ssawna

A	975	mm
A 1	101	mm
B	802	mm
C	385	mm
C 1	445	mm
C 2	16	mm
D	656	mm
E	410	mm
F 1	75	mm
F 2	105	mm
S	94	mm
L	161	mm

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10. Schematic diagrams

10.1. iCOOL series SE



1	Rotary inverter compressor
2	Condenser coil
3	Liquid receiver
4	Filter dryer
5	Sight glass
6	Fan
7	HP pressure switch
8	Check vavle
9	Rotalock valve
10	Shut-off valve liquid line
11	Shut-off valve suction line"
12	Service valve
13	Temperature sensor
14	Thermal insulation
15	Pressure transducer LP
16	Pressure transducer HP
17	Crankcase heater
18	Safety valve

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